WHAT WE CLAIM IS:

1. A method of producing at least two stranded aluminum cables (70') of different gauge from aluminum wires (24) all of the same initial cross-sectional area, which comprises assembling and stranding a first set of the wires (24) all of the same initial cross-sectional area to form a first cable (70') and subsequently assembling and stranding at least one other set of the wires all of the same initial cross-sectional area, and of the same initial cross-sectional area as the wires of the first set, to form at least one other cable, wherein, while assembling at least one set of the wires for the formation of at least one of the cables, the wires are reduced in cross-sectional area in at least two rolling steps (28, 30 and 42, 44), each rolling step causing a reduction in cross-sectional area of the wires less than an amount at which brittleness of the wires is produced.

2. The method of claim 1, wherein each rolling step causes a reduction in cross-sectional area of no more than 40%.

3. The method of claim 1, wherein each rolling step causes a reduction of cross-sectional area of no more than 30%.

4. The method of claim 1, wherein each rolling step causes a reduction of cross-sectional area of no more than 25%.

5. The method of claim 1, wherein a total reduction of cross-sectional area produced by said at least two rolling steps is 65% or less.

6. The method of claim 1, wherein, between each of said at least two rolling steps (28, 30 + 42, 44), the wires (24') are axially rotated through and angle in the range of 45 to 135°.

7. The method of claim 1, wherein, between each of said at least two rolling steps, the wires are axially rotated by an angle of 85 to 95°.

8. The method of claim 1, wherein, a first (28, 30) of said at least two rolling steps imparts a non-circular cross-sectional shape to said wires, and a second (42, 44) of said at least

two rolling steps imparts a circular cross-sectional shape to said wires.

9. The method of claim 8, wherein said non-circular cross-section is selected from the group consisting of oval and diamond-shape.

10. The method of claim 8, wherein said wires are rotated through 85 to 95° between said first (28,30) and second (42,44) rolling steps.

11. The method of claim 1, wherein there are only two (28,30 and 42,44) of said rolling steps for each wire of said at least one set of wires.

12. The method of claim 1, wherein, following said rolling steps that cause said reduction of cross-sectional area, at least some of the wires (24B''') of a set are subjected to a further rolling step (74) that changes a cross-sectional shape of the wires to better fit within the cable (70) formed from said wires.

13. The method of claim 1, wherein each of said cables is assembled with a central wire (24B') and at least one layer of wires (24B'') surrounding said central wire.

14. The method of claim 13, wherein each cable has two layers of wires surrounding said central wire (24B').

15. The method of claim 13, wherein each cable has a central wire (24B'), a first layer of six surrounding wires (24B'') and a second layer of 12 (24B''') surrounding wires.

16. The method of claim 1, wherein the wires (24) are made of an aluminum alloy.

17. The method of claim 16, wherein the aluminum alloy is selected from the group consisting of AA1350, AA6201 and AA8000 aluminum alloy.

18. The method of claim 1, wherein the wires initially have an outer diameter selected from the group consisting of 0.0982 inch.

19. The method of claim 1, wherein the cables (70) formed from the wires (24) have an AWG gauge within the range of 8AWG to 1000 kcmil or a metric equivalent thereof.

20. The method of claim 18, wherein the cables (70) formed from the wires (24) have an AWG gauge selected from the group consisting of 1-19W, 1/0-19W, 2/0-19W, 250-37W and metric equivalents thereof.

21. The method of claim 1, wherein the wires (24) initially have an outer diameter of 0.124 inch.

22. The method of claim 21, wherein the cables (70) formed from the wires (24) have an AWG gauge selected from the group consisting of 2-7W, 1/0-7W, 2/0-19W, 3/0-19W, 4/0-19W, and 350-37W and metric equivalents thereof.

23. The method of claim 1, wherein the cables (70) are provided with a coating of electrically insulating material.

24. A method of producing at least two stranded aluminum cables (70') of different gauge from aluminum wires (24) all of the same initial cross-sectional area, which comprises assembling and stranding a first set of the wires (24) to form a first cable (70') and subsequently assembling and stranding at least one other set of the wires to form at least one other cable, wherein, prior to the assembling of at least one set of the wires for the formation of at least one of the cables, the wires are reduced in cross-sectional area in at least two rolling steps (28, 30 and 42, 44), each rolling step producing no more than 40% reduction of the cross-sectional area of the wire immediately prior to each rolling step.

25. A method of producing a stranded aluminum cable of desired final gauge, comprising the steps of: assembling a plurality of individual metal wires (24) of the same initial cross-sectional area, rolling the wires in at least two rolling steps (28, 30 & 42, 44) to reduce the initial cross-sectional area of the wires for compatibility with said desired final gauge of the cable (70), and stranding a cable (70) from said wires (24B) of reduced cross-sectional area, wherein each rolling step causes a reduction in cross-sectional area of the wires less than an amount at which brittleness of the wires commences.

26. The method of claim 25, wherein each wire (24) is rolled from said initial cross-sectional area to said reduced cross-sectional area in no more than four rolling steps.

27. The method of claim 25, wherein each wire (24) is rolled from said initial cross-sectional area to said reduced cross-sectional in just two rolling steps (28, 30 and 42, 44).

28. The method of claim 25, wherein said plurality of wires (24B) is assembled into said cable (70) by selecting a single wire (24B') as a core wire, and twisting a remainder of said wires (24B'' and 24B''') around said core wire in one or more layers.

29. The method of claim 28, wherein said remainder of wires is twisted around said core wire to form two layers (24B'' and 24B''').

30. The method of claim 25, wherein each wire (24) of said plurality of wires is rolled in a first rolling step (28, 30) from a circular cross-section to a non-circular cross-section and then rolled in a second rolling step (42, 44) to a circular cross-section.

31. The method of claim 30, wherein said non-circular cross-section is selected from the group consisting of an oval and a diamond-shape.

32. The method of claim 25, wherein said rolling steps (28, 30 & 42, 44) involve passing each wire (24) between a pair of rolls (28, 30 or 42, 44) acting on said wire in a direction of force, and wherein the direction of force of one rolling step is rotated by approximately 90° compared to the direction of force of an immediately preceding or succeeding step.

33. The method of claim 25, wherein a lubricant is present on said wire prior to or during said rolling steps (28, 30 & 42, 44).

34. The method of claim 26, wherein said third rolling step (74) shapes said wires to produce even layering of said wires on said core (24B').

35. The method of claim 25, wherein said cable (70) is subjected to a compacting or compression step.

36. The method of claim 25, wherein said wires (24) are made of aluminum alloy.

37. The method of claim 25, wherein, following said assembling of said wires (248), said wires are twisted together by passing said wires through a double twisting machine (10).

38. Apparatus for producing a stranded metal cable (70), comprising a supply of metal wires (24) all of the same initial cross-sectional area, equipment for assembling the wires for cable (70) formation, and a machine (10) for stranding the wires into a cable, the apparatus comprising at least two adjustable rolling passes (28, 30 & 42, 44) positioned between said supply and said stranding machine, each rolling pass being configured for rolling each wire to reduce the cross-sectional area of the wire by an amount less than that at which brittleness of the wires is caused.

39. The apparatus of claim 38, wherein each rolling pass (28, 30 or 42, 44) is configured to reduce the cross-sectional area of the wire (24) by no more than 40% by each roll set immediately prior to advancement of the wires to the machine (10) for stranding the wires into cable.

40. The apparatus of claim 38, wherein each rolling pass (28, 30 or 42, 44) is configured to reduce the cross-sectional area of the wire (24) by no more than 30% by each pass immediately prior to advancement of the wires to the machine (10) for stranding the wires into cable.

41. The apparatus of claim 38, wherein each rolling pass (28, 30 or 42, 44) is configured to reduce the cross-sectional area of the wire by no more than 25% by each pass immediately prior to advanc ment of the wires to the machine (10) for stranding the wires into cable.

42. The apparatus of claim 38, having just two rolling passes (28, 30 and 42, 44) for each wire.

43. The apparatus of claim 38, having three rolling passes (28, 30 and 42, 44 and 74) for each wire.

(39, 40)

44. The apparatus of claim 38, including means for axially rotating the wires between the rolling passes.

45. The apparatus of claim 38, wherein said means for axially rotating the wires rotates the wires through an angle of 45 to 135°.

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